



# Research Note

• UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

INTERMOUNTAIN FOREST & RANGE EXPERIMENT STATION  
OGDEN UTAH

No. 87

March 1962

## DAMAGE TO PONDEROSA PINE PLANTATIONS

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Three types of damage to trees in three different plantations of ponderosa pine occurred recently in southern Idaho. One was due to disease, one to rabbits, and one to insects. All these plantations were established on granitic soil, typical of the sites on which ponderosa pine grows in this part of its range.

The first injury occurred to 10 trees in a 1-acre plantation on a timber sale area on the Payette National Forest. About a year after the trees were planted, dead cambium appeared at the ground level. Fruiting bodies found on the stems suggest that a pathogen could be the primary cause. Though the injury was slight in extent, it killed the seedlings that were infected. One stem contained a specimen of a Hylurgops adult, which is considered commonly to be a secondary insect.

The damage caused by rabbits (feces near stems suggest snowshoe hares) occurred in early July in a 40-acre experimental planting on the Boise Basin Experimental Forest. Each of four 10-acre blocks had been sprayed twice by helicopter with different dosages of herbicide to minimize plant competition prior to planting. The animals removed the terminal buds of many hundreds of the 2+1 ponderosa pine seedlings that had been planted by machine in furrows in the spring of the same year. Heaviest damage occurred on the only plot that had been sprayed to kill both the herbaceous and the woody vegetation. It is interesting that invariably only the terminal bud was removed. Multiple stems will result from this feeding, an unseasonal activity for these mammals.

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The most serious damage occurred in the Town Creek plantations, which are 2 to 7 years old and located on the Boise National Forest near Centerville, Idaho. This damage was caused by the June feeding of a tussock moth, which most commonly stripped all but the current year's needles. The feeding occurred in small areas and in an irregular pattern over some 500 acres. The many stems of Ceanothus, which form the main ground cover, were completely stripped in affected areas. So far, no mortality of the planted trees has occurred, but the larvae from the many egg masses on the leaders could feed on the remaining foliage and weaken the trees still further. This instance of feeding on ponderosa pine by the tussock moth may result in understocking from mortality before the outbreak subsides.

The fact that the plantations have suffered these attacks is interesting, but more important are the implications to be considered when new plantations are planned. The choice of species for regeneration should be considered most carefully. The area of plantations in the West is increasing annually and will increase at a faster rate in the near future. To forestall, or at least minimize, the effects of destructive agents, the silviculturist should observe certain known and important principles.

First, he should use stock raised from seed collected as near the planting site as possible and from acceptable individuals. He may wish to consider planting more than one of the native species so that one or more could serve as buffers. Second, he should critically appraise the most suitable preventive measures against pests and, if possible, apply the most appropriate ones. Poisons or repellents against animals are obviously a wise precaution. Nursery stock reinforced by systemic additives are certain possibilities and will become increasingly important. Third, he must remember that the form and development of stands can be markedly influenced by the physical arrangement or patterns of planted trees such as alternate rows, groups, and various spacings.

In any event, the establishment of plantations should not be regarded as an easy alternative to natural regeneration that requires only money and manpower to implement. Successful plantations should not be due to chance but to the acumen and skill of the silviculturist.